# Core Content

| **Cluster Title: Similarity, right triangles, and trigonometry.** |
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| **Standard:** Define trigonometric ratios and write trigonometric expressions in equivalent forms. |
| **Concepts and Skills to Master** |
| • Show how sine, cosine, and tangent are related using trigonometric identities for right triangles.<br>• Define secant, cosecant, and cotangent in terms of sine, cosine and tangent using right triangles. |

# Supports for Teachers

| **Critical Background Knowledge** | |
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| • Sine, cosine, tangent<br>• Pythagorean Theorem | |
| **Academic Vocabulary** | |
| Sine, cosine, tangent, secant, cosecant, cotangent | |
| **Suggested Instructional Strategies** | **Resources** |
| • Use special right triangles to define trigonometric values.<br>• Connect the co-function identities with congruent triangles whose non-right angles are switched.<br>• Limit to the first quadrant. | |
| **Sample Formative Assessment Tasks** | |
| **Skill-based Task**<br><br>Find the sin, cos, tan, sec, csc, cot of a 45-45-90 triangle. | **Problem Task**<br><br>Prove that sin θ = cos (90° – θ) using congruent triangles.<br><br>Prove that $\left(\tan^2\theta\right)\left(\cot^2\theta\right)=1$ |